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THE GENUS *DYSDERINA* (ARANEAE, OONOPIDAE) IN CENTRAL AMERICA AND THE WEST INDIES

Arthur M. Chickering

ABSTRACT. A total of twenty-four species of the genus *Dysderina* are recognized in this paper. Seventeen species are described as new. Nine of these are from Panama, two are from Costa Rica, two are from Trinidad, W. I., one is from Jamaica, W. I., two are from St. Vincent, B. W. I., and the remaining one is from Dominica, B. W. I. *Dysderina principalis* Simon from St. Vincent, B. W. I. is not *D. principalis* (Keyserling) from Colombia and, therefore, is described as a new species, *D. soltina* sp. nov. *Dysderina antillana* Bryant, described from St. Croix, U. S. Virgin Islands in 1942 and reported from Hispaniola in 1948, has been shown to be *Ischnothyreus peltifer* (Simon) and is treated in another publication.

The Oonopidae include a group of very small spiders usually occupying concealed habitats such as leaf litter, debris, especially grass and weed debris, and other similar habitats. They are particularly numerous in tropical and subtropical regions but are now known from many other parts of the world. The distinctive features of the family are treated in such publications as the following: Simon, 1892-1895; Petrunkevitch, 1939; Comstock, 1940; Kaston, 1948, and others, and will not be treated in this paper. Since early in my work of collecting and studying spiders in Panama, I have continued to be interested in these minute members of the order Araneae. For the past several years I have made a special effort to collect members of the family Oonopidae in Central America and the West Indies. As a result of this effort I have accumulated a rather large number of species of several genera belonging to this family, and the time has arrived for me to put the results of these years of study and collecting into a permanent record. It had been my intention to publish the results of these studies in a single monograph. Recently, however, the decision was made to publish a series of shorter papers each dealing with a single genus or a group of genera as conditions seem to warrant. The genus *Dysderina* is one of a group of genera to be treated early in the series.

My appreciation and gratitude are again expressed for the continued aid and encouragement in the pursuit of my studies extended by the staff of the Museum of Comparative Zoology. My thanks are also extended to Dr. W. J. Gertsch, American Museum of Natural History, Dr. G. Owen Evans and Mr. D. J. Clark, Department of Zoology, British Museum (Natural History) for the loan of important species of the genus *Dysderina*. Grants GB-1801 and GB-5013 from the National Science Foundation have made it possible for me to continue my work in the Museum of Comparative Zoology and to spend a total of nearly twelve months during the last four years collecting in Panama, Costa Rica, and the West Indies.

Except as otherwise stated in later parts of this paper, all types together with my entire collection of the genus *Dysderina* will be deposited in the Museum of Comparative Zoology.

Genus *DYSDERINA* Simon, 1891

The type species is *Dysderina principalis* (Keyserling) by monotypy. The genus was established on the basis of a male from Colombia identified by Keyserling as *Oonops principalis*. Simon (1891) correctly recognized that this species could not be regarded as belonging to the genus *Oonops* and, therefore, placed it in a new genus *Dysderina*. Simon also described two additional species from St. Vincent Island, B. W. I. *Dysderina plena* O. P.—Cambridge was described from Mexico in 1894. *Dysderina antillana* Bryant was described from St. Croix, U. S. Virgin Islands in 1942, and also reported from Hispaniola in 1948, but is now known to be *Ischnothyreus peltifer* (Simon) as will be shown in another paper. In 1951 I reported four species of *Dysderina* from Panama. Since that time I have collected these small spiders at every opportunity and as a result I now have a rather large collection consisting of numerous species from parts of Central America and the West Indies but none has appeared east of Dominica, W. I. The most important features of this genus observed during my study of the group may be stated as follows: Total length varies from about 1.6 mm to 2.75 mm, with females usually somewhat larger than males. There is a remarkable similarity of general appearance among the species recognized in this paper. Males can be readily separated into species on the basis of the distinctive features of the palpal tarsi. Females, on the other hand, are very difficult to separate into species with any degree of certainty. In my treatment of this sex I have placed great emphasis on the epigynal areas

which occasionally are quite distinctive but more frequently are at best only obscurely so. Nearly all outer parts are strongly chitinized. The carapace is moderately high; regularly arched from posterior eyes to beginning of posterior declivity; about three-fourths as wide as long nearly opposite second coxae; surface irregularly granulate; usually with no indication of a median groove or pit. Eyes: six in two rows; AME lacking; posterior row gently recurved as viewed from above; quite compactly arranged; little difference in size of eyes but shape often varies (long diameter always used for measurements); clypeus typically heavily bordered. Chelicerae moderately developed; usually vertical, parallel; with fang typically slender and evenly curved; fang groove with a single tooth, at least in certain species. Maxillae with a peculiar terminal notch seen only in males and thus far only in a few species (Fig. 2). Lip: strongly chitinized; considerably wider than long; transversely concave in middle. Sternum: strongly chitinized; usually deeply grooved with conspicuous lobules opposite the coxae; continued laterally between coxae and united with a sclerite surrounding the cephalothorax to make a strong enclosure; sternal suture strongly procurved; fourth coxae usually widely separated. Legs: usually 4123 in order of length but with minor variations occasionally; first and second legs with conspicuous ventral spines which vary somewhat among different species; third and fourth legs without true spines. Male palp: all segments except tarsus simple and unmodified; apparently without true spines; tarsus somewhat inflated and with more or less distinctive terminal structures. Abdomen: ovoid; with pedicel strongly chitinized and deeply corrugated; dorsal scutum varies somewhat in size but typically covers most of dorsum; epigastric scutum continued around pedicel and far dorsally (Fig. 8); ventral scutum covers much of remainder of venter but varies in extent; a sclerite typically partially surrounds the spinnerets on ventral side; black bristles may mark the position of the reduced colulus; openings of book-lungs, tracheal spiracles, and genital organs more or less distinct. Genital area somewhat distinctive but usually obscure. Where the species under consideration agrees fully with the stated features of the genus no mention will usually be made of the specific characteristics in the description of the species.

As a result of my study of the genus *Dysderina* presented in this paper I am obliged to recognize a total of twenty-four species from the region under study (exclusive of *D. principalis* (Keyserling) from Colombia). The number is undoubtedly inflated because of the great difficulty in accurately matching up males and females.

Thirteen of these species are from Panama; two are from Costa Rica; one is from Mexico; two are from Trinidad, W. I.; one is from Jamaica, W. I.; four are from St. Vincent, B. W. I.; and one is from Dominica, B. W. I. Fifteen of these species, ten of which are regarded as new, are represented by males; nine are represented only by females of which seven are regarded as new; six of the different kinds of males are accompanied by what are believed to be properly assigned females. It should be remembered, however, that matching females with the proper males is a very uncertain task.

*Key to the males of DYSDERINA from Central America
and the West Indies*

- 1a. Species in which the palpal tarsus terminates in a pair of slender distal apophyses, one sickle-shaped and one somewhat feather-shaped (Fig. 43) *D. obtina*, p. 21
- 1b. Species without such palpal, tarsal, distal structures as given above 2
- 2a. Species with a group of four or five distal, terminal apophyses on the palpal tarsus (Fig. 30) *D. globina*, p. 14
- 2b. Species without such palpal, tarsal, distal structures as given above .. 3
- 3a. Species with three definite, distal, palpal, tarsal apophyses (Figs. 41, 77) (*meridina*, *spinigera*) 4
- 3b. Species without such distal, palpal, tarsal structures as given above .. 5
- 4a. Species with distal, palpal, tarsal apophyses as in Figure 41
..... *D. meridina*, p. 20
- 4b. Species with distal, palpal, tarsal apophyses as in Figure 77
..... *D. spinigera*, p. 31
- 5a. Species with a single, short, broad, distal, palpal, tarsal apophysis divided into an opaque half and a transparent half (Fig. 4)
..... *D. abdita*, p. 5
- 5b. Species without such a single distal apophysis as given above 6
- 6a. Species with a long, slender, distal, palpal, tarsal spine and a relatively massive, somewhat twisted, closely associated apophysis (Figs. 20-22)
..... *D. craneae*, p. 10
- 6b. Species without such a pair of distal, palpal, tarsal structures as given above 7
- 7a. Species in which the distal, palpal, tarsal apophysis turns at a right angle near its base and then divides into a pair of flattened structures (Figs. 37-38) *D. intempina*, p. 19
- 7b. Species without such a distal, palpal, tarsal apophysis as given above 8
- 8a. Species with a single, distal, palpal, tarsal extension divided into a pair of relatively short, incurved apophyses (Figs. 46-47) .. *D. plena*, p. 23
- 8b. Species without such a pair of apophyses as given above 9

- 9a. Species with two distal, palpal, tarsal structures, a slender curved spine and a relatively large, broad, compound apophysis (Fig. 63) *D. seclusa*, p. 27
- 9b. Species without such a pair of distal, palpal, tarsal structures as given above 10
- 10a. Species with palpal, tarsal, distal apophysis terminating in a broad, angular, somewhat concave structure (Fig. 16) *D. concinna*, p. 9
- 10b. Species without such a distal, palpal, tarsal structure as given above 11
- 11a. Species with palpal, tarsal, distal apophysis a single robust structure divided distally into a short, slender spine and a sharply pointed robust spine (Fig. 65) *D. simla*, p. 29
- 11b. Species without such a palpal, tarsal, distal apophysis as given above 12
- 12a. Species with a main palpal, tarsal, distal apophysis sharply bent mid-way, enlarged and flattened distally and with a minute spine (Figs. 58-59) *D. recondita*, p. 25
- 12b. Species without such palpal, tarsal, distal structures as given above 13
- 13a. Species with a robust palpal, tarsal, distal apophysis terminating in a series of short, pointed structures obscured by a cluster of hairs (Figs. 69-70) *D. soltina*, p. 30
- 13b. Species without such a palpal, tarsal, distal apophysis as given above 14
- 14a. Species with a pair of palpal, tarsal, distal apophyses curved toward one another; clypeus about three-fourths as high as diameter of ALE (Chickering, 1951, figs. 2, 3; and Fig. 24 this paper) .. *D. dura*, p. 12
- 14b. Species with a long, curved, palpal, tarsal, distal apophysis together with a slender spine and a short, blunt process between the two; clypeus about as high as diameter of ALE (Fig. 81) .. *D. watina*, p. 33

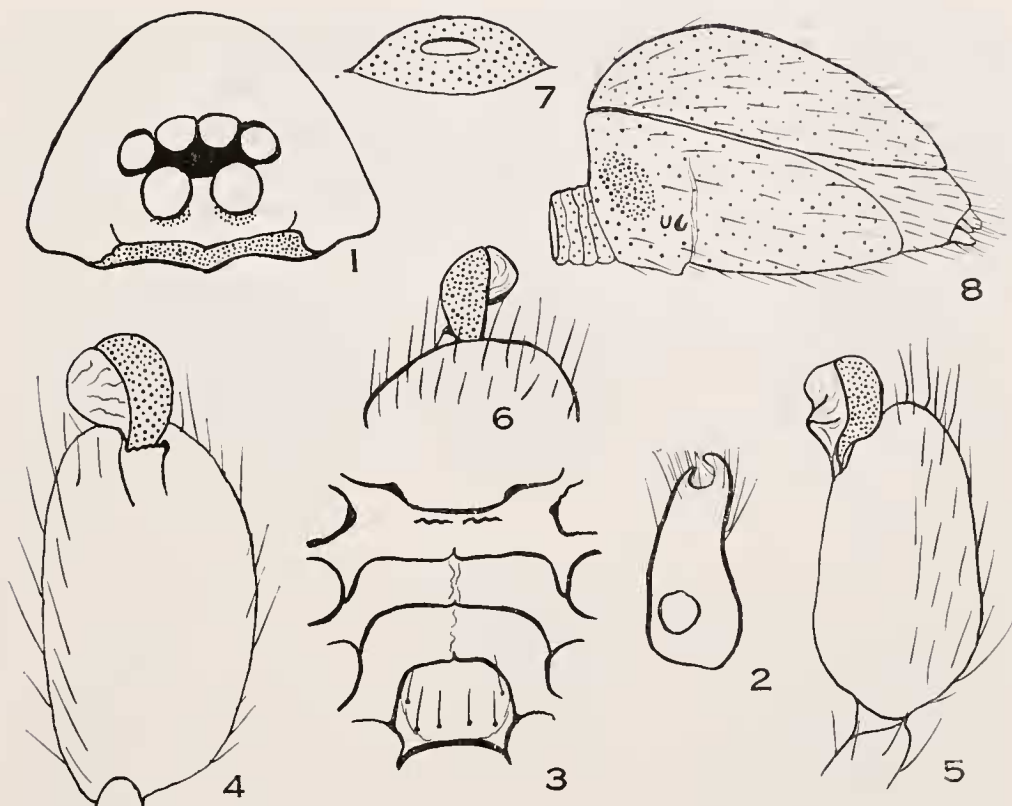
DYSDERINA ABDITA sp. nov.

Figures 1-8

Holotype. The male is from El Volcan, Republic of Panama, August, 1950. The name of the species is a Latin adjective referring to its concealed habitat.

Description. Total length 2.28 mm. Carapace 1.04 mm long; 0.85 mm wide opposite second coxae where it is widest; well rounded along ventral border from opposite base of palp to posterior margin; 0.52 mm tall; quite evenly arched from PME to beginning of posterior declivity which begins opposite interval between second and third coxae; with surface unevenly granulate with median arched area nearly devoid of granulations; without a median, longitudinal thoracic groove or pit; with sparsely situated short recurved hairs or fine bristles. Eyes: six in two rows as usual; posterior row occupies about five-sixths of width of carapace

at that level; viewed from above, posterior row gently recurved; viewed from in front, posterior row gently procurved (Fig. 1). Ratio of eyes ALE : PME : PLE = 10 : 9 : 9; boundaries of ALE somewhat irregular but nearly circular, others somewhat oval. ALE separated from one another by nearly their radius, from PLE by one-sixth of their diameter, from PME by a little less than one-third of their diameter. PME contiguous only for a short distance and separated from PLE by about one-ninth of their diameter. Height of clypeus (Fig. 1) slightly less than the diameter of ALE. Chelicerae: vertical; essentially parallel; basal segment 0.29 mm long; apparently without a basal boss; fang slender and evenly curved; fang groove apparently with a very small tooth, probably promarginal. Maxillae: moderately long; slender; distinctly convergent and almost meeting anterior to lip; palp inserted into basal third; with a well developed distal scopula; distal end divided (Fig. 2). Lip: strongly chitinized; extended posteriorly into sternal area and with an obscure groove separating the horizontal part from the more vertical portion; wider at base than long in ratio of about 9 : 7; anterior border with a row of stiff bristles. Sternum: scutiform in general; as wide as long; widest between second coxae; strongly chitinized and distinctly but less intricately grooved than in several other species (Fig. 3); posterior border recurved and not continued between fourth coxae which are separated by about 1.5 times their width; coxae three and four short and stout; coxae one and two somewhat more elongated; sternal suture procurved. Legs: 4213 in order of length; tibial index of first leg 10, of fourth leg 9; trichobothria present but exact number and placement undetermined. Tarsal claws apparently as recorded for *D. seclusa* (Chickering, 1951). First femur with two pairs of ventral spines in distal half; first tibia with five pairs of ventral spines, first very long but diminishing distally so that last pair is hardly more than a pair of bristles; first metatarsus with three pairs of ventral spines, irregularly spaced. Second femur apparently with only one conspicuous spine on prolateral surface at beginning of distal third; second tibia with four pairs of ventral spines; second metatarsus apparently with only two pairs of ventral spines, irregularly spaced. Third and fourth legs lacking true spines. Palp: only tarsus inflated; important features, more or less distinctive, shown in Figures 4-6. Abdomen: with a well developed and strongly corrugated pedicel; 1.24 mm long exclusive of pedicel; 0.9 mm wide near middle; spinnerets as usual in the genus; genital aperture as in Figure 7; dorsal scutum covers nearly the entire dorsum; epigastric scutum continued around anterior end of abdomen; boundaries between epigastric and ventral scuta not clear; ventral scutum covers



Figs. 1-8. *Dysderina abdita* sp. nov. Fig. 1. Eyes and clypeus; from in front. Fig. 2. Right maxilla; nearly lateral view (from dissected paratype). Fig. 3. Sternum; from below. Figs. 4-5. Left palpal tarsus; nearly ventral and retrolateral views, respectively. Fig. 6. Tip of left palpal tarsus; nearly dorsal view. Fig. 7. Genital aperture. Fig. 8. Abdomen; left side (from paratype.)

nearly the entire venter except for a small area at posterior end and laterally where the two scuta nearly meet (Fig. 8). Color in alcohol: in general, a rich reddish brown, essentially as described for *D. dura* and others (Chickering, 1951).

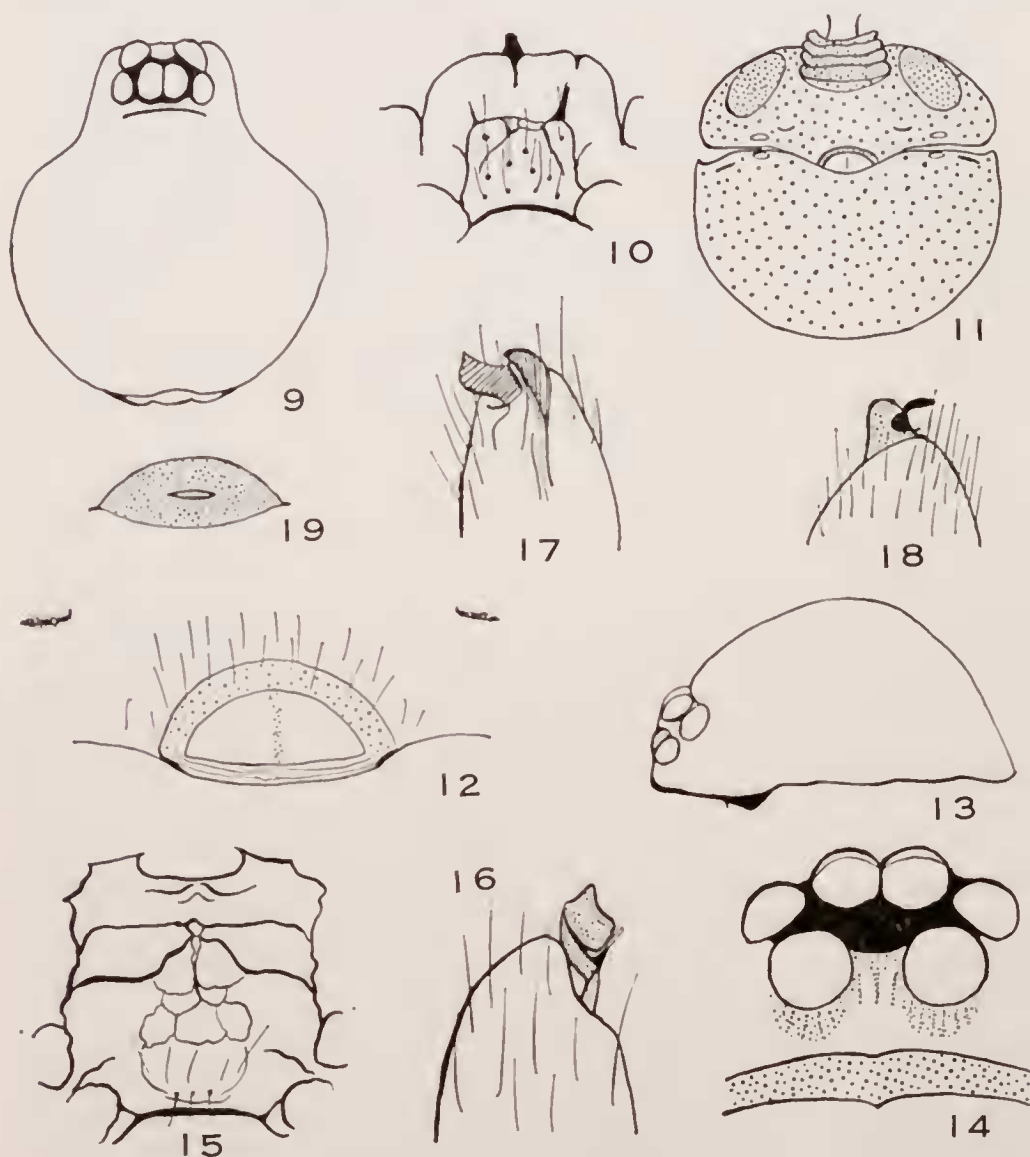
Records. Seven paratype males from El Volcan, Panama, August, 1950. It seems probable that one of the two kinds of females described from the same locality and collected during the same period should be matched with these males but this is not at present possible to do with any certainty.

DYSDERINA BELINDA sp. nov.

Figures 9-12

Holotype. The female is from Boquete, Panama, August, 1950. The name of the species is an arbitrary combination of letters.

Description. Total length 2.5 mm. Carapace: 1.08 mm long; 0.9 mm wide opposite posterior border of second coxae where it is widest (Fig. 9); 0.49 mm tall opposite interval between second and third coxae where it is tallest; distinctly arched from PME to beginning of steep posterior declivity; surface distinctly granulate and with granulations often in rows; with a recurved groove just



Figs. 9-12. *Dysderina belinda* sp. nov. Fig. 9. Carapace; dorsal view. Fig. 10. Posterior end of sternum; from below. Fig. 11. Venter, from below. Fig. 12. Epigynal area; from below. Figs. 13-19. *Dysderina concinna* sp. nov. Fig. 13. Carapace; left side. Fig. 14. Eyes and clypeus; from in front. Fig. 15. Sternum; from below. Figs. 16-18. Distal end of left palpal tarsus; nearly prolateral, nearly ventral and nearly dorsal, respectively. Fig. 19. Genital aperture.

behind posterior eyes; thoracic part regularly rounded along ventral margin and sharply narrowed shortly behind eyes. Eyes: six as usual in a fairly compact group; posterior row occupies about two-thirds of width of carapace at that level; viewed from above, posterior row slightly recurved, measured by posterior borders. Ratio of eyes ALE : PME : PLE = 9.5 : 9 : 8.5. ALE separated from one another by about one-half their long axis; separated from PME by about one-fourth of their long axis and from PLE by a line at one point. PME contiguous for nearly one-fourth of their circumference; separated from PLE by a line at one point. Posterior row only slightly wider than anterior row. Height of clypeus equal to fully three-fourths of the long axis of ALE. Chelicerae, maxillae and lip typical of females of the genus as far as observed. Sternum: rather strongly convex; with the usual intricate grooves and lobes typical of the genus; posterior end very bluntly terminated and only extended between bases of fourth coxae which are separated by nearly 1.5 times their width (Fig. 10). Legs: tibial index of first and fourth legs 9; spines essentially as described for *D. silvatica* Chickering (1951) with no very important differences. Abdomen: essentially as described for *D. silvatica* Chickering (1951); scuta and sclerite partly surrounding spinnerets quite typical of the genus (Fig. 11). Epigynal area: very simple as usual (Fig. 12). Color in alcohol: essentially as described for other species; with no important differences.

This species appears to be closely related to *D. silvatica* Chickering, 1951 (Fig. 6) but differs from that species definitely with respect to the features of the epigynal area. In the former species the epigynal area is a nearly semicircular area with a minute dot near the posterior border. In *D. belinda* sp. nov. the epigynal area (Fig. 12) appears as a nearly semicircular area with a complete, conspicuous border and a faint central, longitudinal stripe.

Records. Three females taken in the same locality with the holotype and during the same short period of nine days in Boquete, Panama, August, 1950, appear to belong here as paratypes.

DYSDERINA CONCINNA sp. nov.

Figures 13-19

Holotype. The male holotype is from El Volcan, Panama, August, 1950. The name of the species is a Latin adjective referring to its neat, pleasing appearance.

Description. Total length 2.27 mm. Carapace 1.01 mm long; 0.86 mm wide opposite interval between first and second coxae

where it is widest; 0.44 mm tall, and therefore, about half as tall as wide (Fig. 13); otherwise essentially as described for *D. abdita* sp. nov. Eyes: posterior row occupies about seven-ninths of width of carapace at that level; gently recurved as seen from above. ALE separated from one another by about five-eighths of their diameter; separated from PLE by one-eighth of their diameter and from PME by about three-eighths of their diameter. PME contiguous for about one-fifth of their circumference; only slightly separated from PLE. Posterior row wider than anterior row in ratio of 9 : 7. Height of clypeus equal to about nine-eighths of the diameter of ALE. Viewed from in front, posterior row gently procurved (Fig. 14). Chelicerae: basal segment 0.33 mm long; fang slender and evenly curved; otherwise essentially as recorded for *D. abdita* sp. nov. No teeth observed along fang groove. Maxillae and lip: apparently as described for *D. abdita* sp. nov. but no distal notch observed on maxillae (scarcity of paratypes prevents dissection for closer examination). Sternum: scutiform in general; slightly longer than wide; intricately and obscurely grooved (Fig. 15); not continued between fourth coxae which are separated by twice their greatest width; right first coxa abnormally small. Legs: tibial index of first leg 9, of fourth leg 10; several trichobothria observed but exact number and placement not determined; two tarsal claws. Spines: first leg with femoral ventral spines 0-1r-1r-2-2, with last two on retromargin reduced to little more than bristles; tibia with ventral spines 2-2-2-2-2-0; metatarsus with five ventral spines, three along promargin and two along retromargin, all irregularly placed. Second tibia with five ventral spines along promargin and four along retromargin; second metatarsus with two pairs of ventral spines; no true spines observed on legs three and four or on palp. Palp: essential features shown in Figures 16-18. Abdomen: 1.17 mm long; 1.04 mm wide near middle; pedicel, scuta, tracheal spiracles, openings to book lungs and spinnerets all essentially as described for *D. abdita* sp. nov.; genital aperture as indicated in Figure 19. Color in alcohol: essentially as described for other species in this paper with slight variations.

Records. Two male paratypes were taken at El Volcan, Panama, August, 1950.

DYSDERINA CRANAE sp. nov.

Figures 20-23

Holotype. The male is from Simla, Arima Valley, Trinidad, W. I. in the close vicinity of the William Beebe Tropical Research

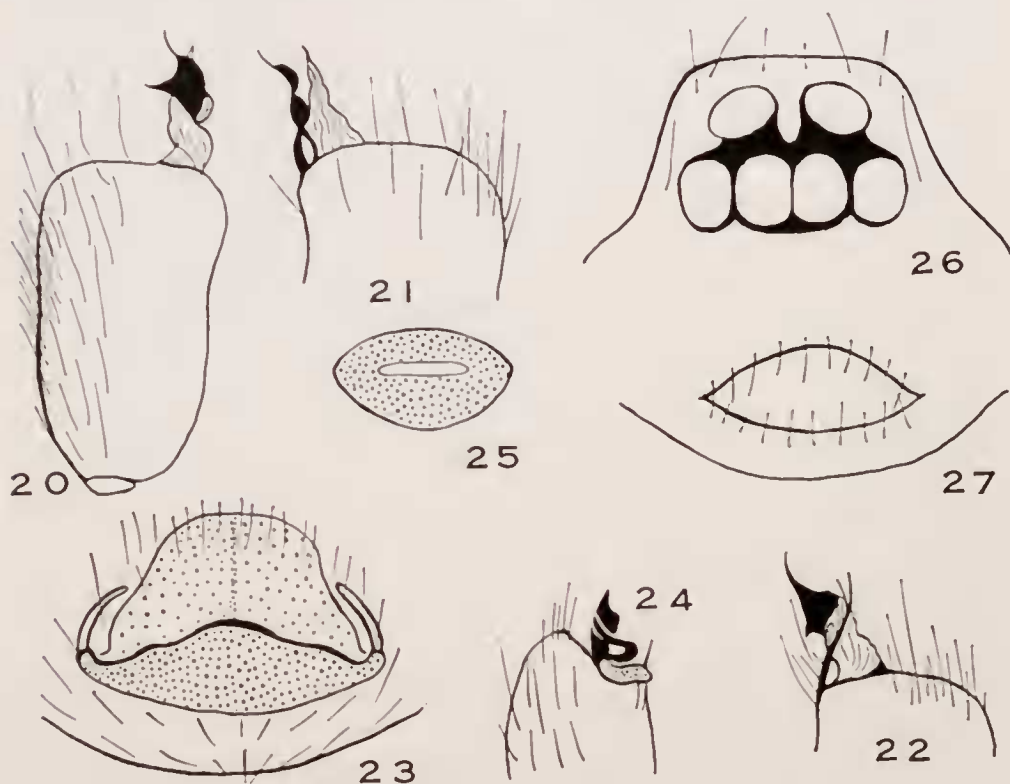
Station, April 25, 1964. The species is named after Miss Jocelyn Crane, Director of the Station.

Description. Total length 2.2 mm. Carapace 1.05 mm long; 0.79 mm wide opposite second coxae where it is widest; 0.42 mm tall; surface conspicuously but very irregularly granulate. Eyes: eye group occupies fully four-fifths of width of carapace at level of PE; viewed from above, posterior row gently recurved; ratio of eyes $ALE : PME : PLE = 10 : 9 : 9$; positions and relationships essentially as stated for *D. globina* sp. nov. Chelicerae, maxillae and lip: all essentially typical of the genus as observed in this study. Sternum: deeply grooved in general pattern usually found in this genus; anterior third with a conspicuous transverse groove but otherwise nearly smooth; posterior two-thirds intricately grooved with primary and secondary grooves; fourth coxae separated by about six-fifths of their width. Legs: tibial index of first and fourth legs 9; spines almost identical with those recorded for *D. globina* sp. nov. Palp: all segments typical of males of the genus except the enlarged tarsus with its embolus and associated structures (Figs. 20-22); the degree of twisting of these structures seems to vary somewhat among the observed male paratypes. Abdomen: typical of males of the genus with respect to scuta, indistinctive genital region, spinnerets, book lungs, tracheal openings, etc.; spinnerets partly surrounded by a ventral semicircular sclerite. Color in alcohol: carapace brown with heavily granulate areas darker than middorsal and nongranulate areas; dorsal abdominal scutum lighter brown; other parts as usual with variations yellowish and light brown.

Female paratype. Total length 2.45 mm. Carapace 1.12 mm long; 0.88 mm wide; 0.45 mm tall; granulate essentially as in male. Eyes: eye group occupies about three-fourths of width of carapace at level of PE; seen from above, posterior row gently recurved; ratio of eyes $ALE : PME : PLE = 10.5 : 10 : 9$; ALE separated from one another by slightly less than their radius; other relationships typical of females of the genus as seen in this study; clypeus heavily bordered; height equal to about seven-tenths of the diameter of ALE. Mouth parts essentially typical of females of the genus. Sternum: essentially as in male except that anterior region is more irregular because of secondary grooves. Legs: 41=23 in order of length; tibial index of first and fourth legs 10; first leg with femoral ventral spines 0-0-1r-2-2-0, tibial ventral spines 2-2-2-2-2-0, metatarsal ventral spines 2-2-2-0; second leg essentially as in first; third and fourth legs devoid of true spines. Abdomen: dorsal and ventral scuta nearly cover this part of body; chitinous

sclerite completely surrounds spinnerets and anal tubercle but is very narrow dorsally. Epigynal area quite distinctive (Fig. 23).

Records. Described female paratype taken with holotype from hay and weed debris by sifting, Simla, Arima Valley, Trinidad, W. I., April 25, 1964. Five male and seven female paratypes taken in vicinity of Simla, Arima Valley, or along roadside to Blanchesseuse, Trinidad, W. I., April, 1964.



Figs. 20-23. *Dysderina craneae* sp. nov. Fig. 20. Left male palpal tarsus; nearly prolateral view. Figs. 21-22. Tip of left male palpal tarsus; dorso-retrolateral view and nearly retrolateral view, respectively. Fig. 23. Epigynal area; from below. Figs. 24-25. *Dysderina dura* Chickering. Fig. 24. Tip of left palpal tarsus; nearly prolateral view. Fig. 25. Genital aperture of male. Figs. 26-27. *Dysderina furtiva* sp. nov. Fig. 26. Eyes from above. Fig. 27. Epigynal area; from below.

DYSDERINA DURA Chickering

Figures 24-25

Dysderina dura Chickering, 1951: 208. The male holotype is in the Museum of Comparative Zoology; collected on Barro Colorado Id., Panama Canal Zone, July, 1936.

A detailed description of this species was published in 1951 together with two figures illustrating certain features of the palp. Two more figures are added here to still further clarify the description. About three dozen specimens have been added to the collection since the recognition of the holotype. All of these have come from the vicinity of the Panama Canal Zone. The species is by far the most numerous in the collection from Panama. The female is still not certainly known but is suspected of being *D. silvatica* Chickering.

DYSDERINA FURTIVA sp. nov.

Figures 26-27

Holotype. The female holotype is from Jamaica, W. I., St. Catherine Parish, 3 mi. north of Spanishtown, Oct. 16, 1957. The name of the species is a Latin adjective referring to its concealed habitat.

Description. Total length 1.98 mm. Carapace 0.84 mm long; 0.69 mm wide opposite second coxae where it is widest; well rounded from just behind PE to posterior border which is only slightly notched; gently rising along median region from PME to beginning of steep posterior declivity; 0.25 mm tall; with no thoracic groove; with a sparse covering of black hairs most conspicuous at beginning of posterior declivity. Eyes: posterior row occupies about eleven-fifteenths of width of carapace at that level; seen from above, posterior row very gently recurved measured by posterior borders but nearly straight (Fig. 26); ratio of eyes $ALE : PME : PLE = 7.5 : 7 : 6.5$; ALE separated from one another by a little less than one-third of their diameter, from PLE by about one-fifth of their diameter and from PME by about one-third of their diameter; PME contiguous for a short distance, barely separated from PLE; posterior row wider than anterior row in ratio of about 22 : 17; viewed from in front, posterior row definitely procurved; height of clypeus equal to about four-fifths of the diameter of ALE. Chelicerae: basal segment 0.25 mm long; fang groove with a minute tooth on each margin near tip of the slender fang; otherwise essentially typical of females of the genus. Maxillae: somewhat more robust than described for *D. silvatica* Chickering (1951) but essentially as in that species. Lip: wider at base than long in ratio of about 13 : 10; slightly concave along distal border; sternal suture gently procurved. Sternum: scutiform in general; as wide as long; strongly convex; only faintly lobulated opposite coxae; grooves and ridges lacking; this last feature very

unusual in the genus; posterior end not extended between fourth coxae which are separated by four-thirds of their width. Legs: 4123 in order of length; tibial index of first leg 8, of fourth leg 7; first leg with only one spine on prolateral side about two-thirds from base of femur; first tibia with ventral spines 2-2-2-2-1p; first metatarsus with ventral spines 2-2-1p; second leg with no femoral spines; second tibia with ventral spines 2-2-2-2-0; second metatarsus with three spines along promargin and two along retromargin with irregularity in placement; legs three and four probably to be considered lacking spines but some of the numerous bristles might be considered weak spines especially on fourth tibia; palp without terminal claw but with many stiff bristles resembling weak spines. Abdomen: pedicel shorter and less corrugated than in typical species; dorsal scutum covers about nine-tenths of dorsum; ventral scuta extend about seven-ninths of distance from pedicel to spinnerets; without a chitinous band guarding the spinnerets as in typical species; position of colulus barely indicated. Epigynal area: very simple as usual in the genus but its form (Fig. 27) seems to be more or less distinctive. Color in alcohol: essentially typical of the genus except that the highly chitinized cephalothorax and scuta are somewhat lighter in color.

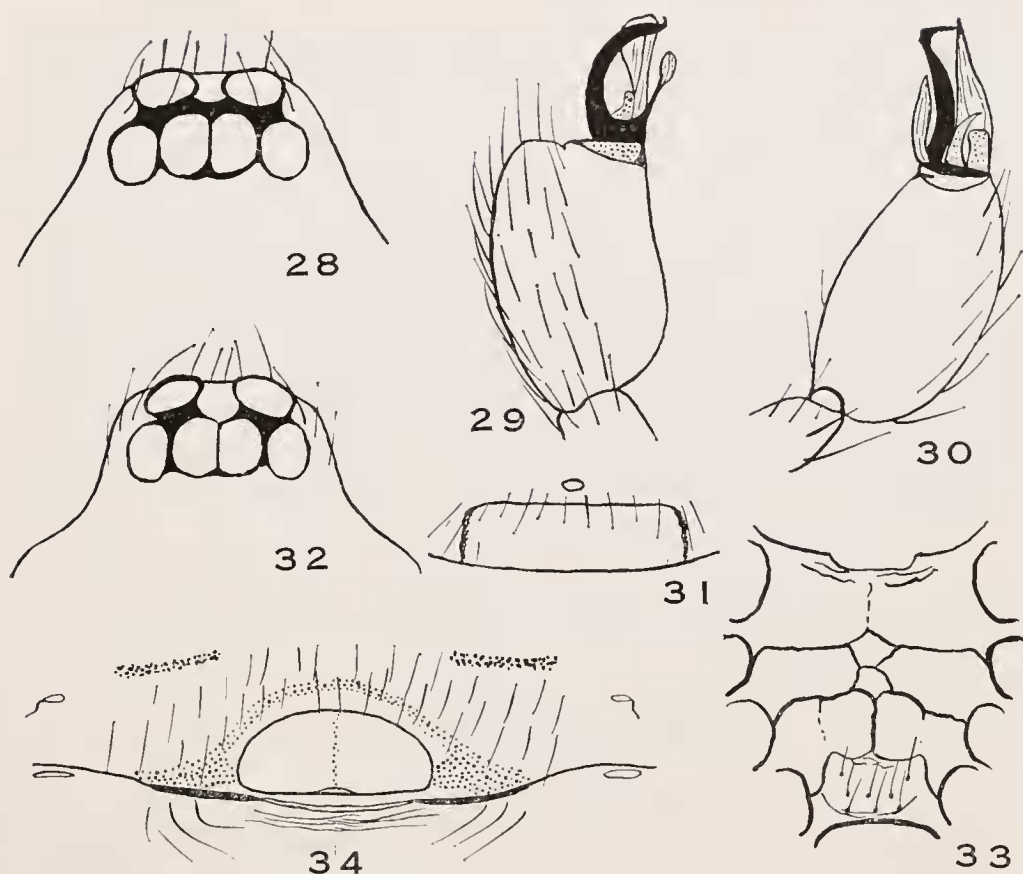
This species also appears to be closely related to *D. silvatica* Chickering, 1951, but the epigynal area is unlike that seen in any other species. In *D. furtiva* sp. nov. this region is a simple, broad, slit-like aperture with a narrow border surrounding a plain white area.

Records. Paratype females were taken with the holotype and numerous specimens are in the collection from the following localities: St. Andrew Parish, Stony Hill, May 26, 1956 (C. C. Hoff); Coopers Hill, Feb. 10, 1955 (P. F. Bellinger); Jack's Hill Road, Dec. 6, 1957; St. Ann Parish, vicinity of Moneague, Nov. 7, 1957; St. Catherine Parish, Evarton, Nov. 29, 1957. Numerous females from Trinidad, W. I., for some time regarded as representing a new species are now referred to this species. No males have yet been associated with these numerous females.

DYSDERINA GLOBINA sp. nov.

Figures 28-31

Holotype. The male holotype is from Dominica, B. W. I., Windward Islands, June 12, 1911. It will be deposited in the American Museum of Natural History, New York, N. Y. The name of the species is an arbitrary combination of letters.



Figs. 28-31. *Dysderina globina* sp. nov. Fig. 28. Eyes from above. Figs. 29-30. Male palpal tarsus; nearly prolateral and retrolateral views, respectively. Fig. 31. Genital region from below. Figs. 32-34. *Dysderina humphreyi* sp. nov. Fig. 32. Eyes from above. Fig. 33. Sternum from below. Fig. 34. Epigynal area from below.

Description. Total length 1.83 mm. Carapace 0.91 mm long; 0.73 mm wide opposite interval between first and second coxae where it is widest; 0.4 mm tall; other features essentially typical of males in the region under study. Eyes: eye group (Fig. 28) occupies about three-fourths of width of carapace at level of PE; seen from above, posterior row moderately recurved; ratio of eyes ALE : PME : PLE = 9 : 9 : 10 (some irregularities in outline noted); ALE separated from one another by three-tenths of their diameter and barely separated from PLE and PME; PME contiguous for more than one-fourth of their circumference and barely separated from PLE; height of clypeus equal to about three-fifths of the diameter of ALE. Chelicerae typical of males in the region under study; maxillae appear to be grooved and possibly divided distally. Lip wide at base and much narrowed distally. Sternum:

granulate; with a deep transverse groove shortly behind procurved sternal suture; with grooves, intricately developed in many species, here very much reduced and simplified; fourth coxae separated by nine-sevenths of their width. Legs: tibial index of first and fourth legs 9; 4123 in order of length; first femur with ventral spines 0-0-1r-1p-1p; first tibia with ventral spines 2-2-2-2-2 (last two little more than stiff bristles); first metatarsus with ventral spines 2-2-1p-0; second femur apparently only with ventral spines 0-0-1p-0; second tibia and second metatarsus essentially as in first with respect to ventral spines; third and fourth legs lacking true spines. Palp: all segments as usual in the genus except tarsus with its complicated embolus and associated apophyses (Figs. 29-30). Abdomen: essentially as described for *D. meridina* sp. nov.; genital region obscure but apparently distinctive (Fig. 31).

Records. One male paratype, somewhat damaged, accompanies the holotype. A female, recently moulted, is also with the holotype but is not in good condition for description.

DYSDERINA HUMPHREYI sp. nov.

Figures 32-34

Holotype. The female holotype is from Boquete, Panama, August, 1954. The species is named after Richard L. Humphrey, M.D., who, as an undergraduate student, was my assistant during a period of field work in Panama in the summer of 1954.

Description. Total length 2.24 mm. Carapace 0.97 mm long; 0.75 mm wide opposite second coxae where it is widest; 0.41 mm tall; somewhat less regularly arched along median dorsal region than usual in females of the genus; otherwise essentially typical of the genus. Eyes: posterior row occupies about three-fourths of width of carapace at that level; almost straight but very slightly recurved as viewed from above (Fig. 32); ratio of eyes ALE : PME : PLE = 8.5 : 8.5 : 7.5 (boundaries of eyes, especially of ALE, are quite irregular); ALE separated from one another by about their radius; ALE barely separated from PLE and from PME by about one-fourth of their diameter. Posterior row of eyes very closely crowded together; PME contiguous for one-fourth of their circumference; barely separated from PLE. Posterior row of eyes wider than anterior row in ratio of about 6 : 5; viewed from in front, posterior row of eyes definitely procurved; height of clypeus equal to about five-eighths of the diameter of ALE. Chelicerae, maxillae, and lip essentially as described for *D. silvatica* Chickering (1951) as far as observed. Sternum: general features as usual in

the genus; fourth coxae separated from one another by a little less than 1.5 times their width; pattern of grooves essentially as represented in Figure 33. Legs: 4123 in order of length; tibial index of first leg 10, of fourth leg 9. Leg spines: first femur with five ventral spines, two on promargin and three on retromargin, not regularly paired; first tibia with five pairs of ventral spines; first metatarsus with five ventral spines irregularly placed; second femur with four ventral spines, one on promargin and three on retromargin; second tibia with four pairs of ventral spines; second metatarsus with five ventral spines, three on promargin and two on retromargin; legs three and four apparently without true spines. Abdomen: scuta, pedicel, tracheal spiracles, etc., all essentially typical of females of the genus. Epigynal area: very simple as usual; essentially as represented in Figure 34. Color in alcohol: essentially typical of the genus with no unusual features.

This species appears to be closely related to both *D. plena* O. P.—Cambridge and *D. silvatica* Chickering but the shape of the epigynal area is somewhat different than in the two previously known species and the dots along the posterior border are completely lacking.

Records. Eight paratype females collected August 4-11, 1954, in the close vicinity of Boquete, Panama.

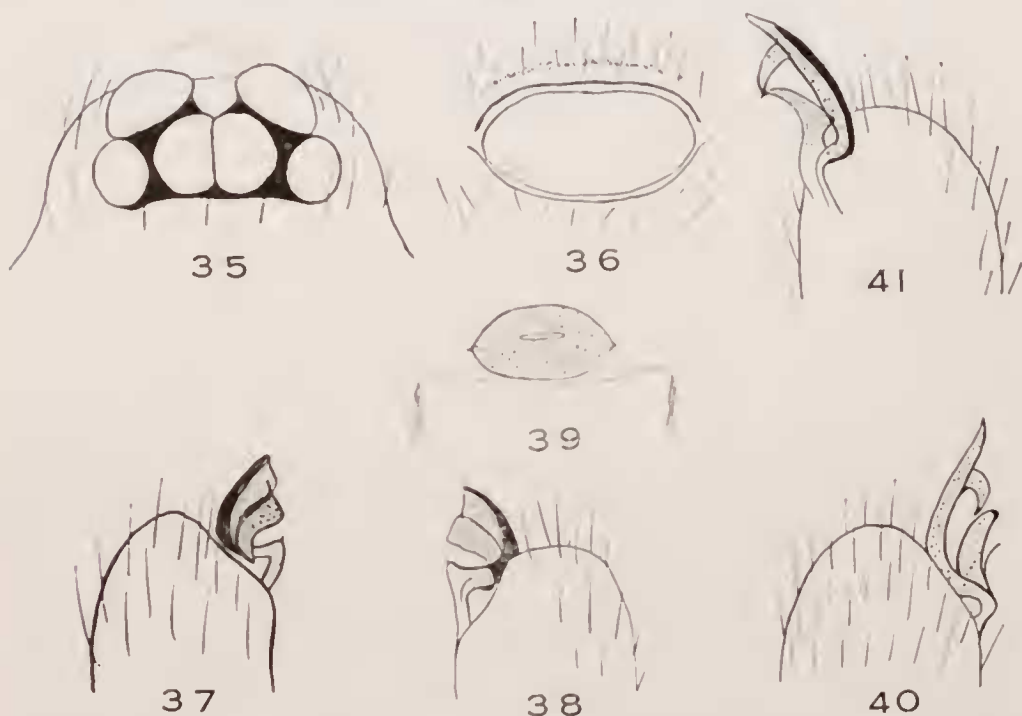
DYSDERINA IMPROVISA sp. nov.

Figures 35-36

Holotype. The female holotype is from Barro Colorado Island, Panama Canal Zone; collected in a Berlese funnel by Dr. James Zetek, May-October, 1946. The name of the species is a Latin adjective meaning unexpected.

Description. Total length 2.26 mm, exclusive of the slightly extended spinnerets. Carapace 0.95 mm long; 0.77 mm wide opposite second coxae where it is widest; 0.4 mm tall; otherwise essentially as in *D. silvatica* Chickering (1951). Eyes: posterior row occupies about three-fourths of width of carapace at that level (Fig. 35); viewed from above, gently recurved. Ratio of eyes $ALE : PME : PLE = 8.5 : 7.5 : 7$. ALE separated from one another by a little more than their radius; contiguous to PLE; separated from PME by nearly one-fourth of their diameter; PME contiguous for about one-fourth of their circumference; barely separated from PLE; posterior row wider than anterior row in ratio of 6 : 5; viewed from in front, posterior row definitely procurved. Height of clypeus equal to about three-fourths of the diameter of

ALE. Chelicerae, maxillae and lip essentially as described for *D. silvatica* Chickering (1951). Sternum: general features as usual in the genus; pattern of grooves rather complicated; fourth coxae separated from one another by about seven-fourths of their width. Legs: 4123 in order of length; tibial index of first leg 9, of fourth leg 10. Leg spines: first femur with irregularities of ventral spines on right and left; first tibia with five pairs of ventral spines; first metatarsus with three pairs of ventral spines; second femur with ventral spines 1r-1r-2-1p; second tibia with ventral spines 2-2-2-2-1p; second metatarsus with two pairs of ventral spines; third and fourth legs with few weak spines. Abdomen: essentially typical of females of the genus. Epigynal area: very simple as usual; essentially as shown in Figure 36. Color in alcohol: also essentially typical of the genus with minor variations.



Figs. 35-36. *Dysderina improvisa* sp. nov. Fig. 35. Eyes from above. Fig. 36. Epigynal area from below. Figs. 37-39. *Dysderina intempina* sp. nov. Figs. 37-38. Distal end of left male palpal tarsus; prolateral and retrolateral views, respectively. Fig. 39. Genital area from below. Figs. 40-41. *Dysderina meridina* sp. nov.; distal end of left male palpal tarsus; prolateral and retrolateral views, respectively.

D. improvisa sp. nov. is also regarded as closely related to *D. silvatica* Chickering but its epigynal area is distinctly oval in shape, as compared to the semicircular shape of this region in the

previously known species. The pattern of grooves on the sternum appears to be somewhat distinctive also.

Records. Seven female paratypes from Barro Colorado Id., Panama Canal Zone, were collected in a Berlese funnel by Dr. James Zetek, May-Oct., 1946. Six females were taken in the same locality as follows: June-Aug., 1936; April-May, 1942 (Zetek); June-Oct., 1946 (Zetek); Aug., 1954; January, 1958. One female was taken in the Canal Zone Forest Preserve, February, 1958.

DYSDERINA INTEMPINA sp. nov.

Figures 37-39

Holotype. The male holotype is from Boquete, Republic of Panama, August, 1950. The name of the species is an arbitrary combination of letters.

Description. Total length 2.15 mm. Carapace 0.99 mm long; 0.79 mm wide opposite second coxae where it is widest; 0.53 mm tall; otherwise essentially typical of males of the genus. Eyes: posterior row occupies about five-sevenths of width of carapace at that level; slightly recurved as seen from above. Ratio of eyes ALE : PME : PLE = 8.5 : 8.5 : 9. ALE separated from one another by their radius; almost in contact with PLE; separated from PME by their radius. PME contiguous only for a short distance; only separated from PLE by a narrow line. Posterior row of eyes wider than anterior row in ratio of about 5 : 4. Height of clypeus equal to slightly less than the diameter of ALE. Viewed from in front, posterior row of eyes moderately procurved. Chelicerae: basal segment 0.31 mm long; essentially typical of males of the genus; no dissection conducted because of scarcity of paratypes. Maxillae and lip: apparently typical of males of the genus. Sternum: grooves quite clearly delineated; very similar to those in *D. obtina* sp. nov.; fourth coxae separated by slightly more than their width. Legs: 4123 in order of length; tibial index of first leg 11, of fourth leg 9; trichobothria observed but exact number and placement not determined. Leg spines: first femur with ventral spines 0-1r-1r-2-1p-0; first tibia with five pairs of long slender spines; first metatarsus with three pairs of ventral spines; second femur apparently with one weak ventral and two weak prolateral spines; second tibia with four pairs of ventral spines; second metatarsus probably with two pairs of ventral spines; these spines tend to be offset prolaterally or retrolaterally. Palp: apparently typical of males of the genus except for the tarsus whose distinctive features are shown in Figures 37-38. Abdomen: pedicel, scuta, etc., apparently typical of males

of the genus; genital region as shown in Figure 39. Color in alcohol: essentially typical of the genus with minor variations.

Records. One paratype male was taken during the same period as the holotype and in the same locality. Females taken at the same time and in the same locality may also belong here but there can be no certainty at this time.

DYSDERINA MERIDINA sp. nov.

Figures 40-41

Holotype. The male holotype is from San José, Costa Rica (Enrique Schmidt). No date of collection is given but, presumably, the specimen was taken fairly recently. The name of the species is an arbitrary combination of letters. The holotype will be deposited in the American Museum of Natural History, New York, N. Y. The abdomen of the holotype is detached from the cephalothorax but otherwise is in a good state of preservation.

Description. Total length 2 mm. Carapace 0.94 mm long; 0.75 mm wide opposite second coxae where it is widest; about 0.4 mm tall; rises gradually from PME to opposite posterior border of second coxae and then descends steeply to posterior border where there is a narrow upturned shelf; surface finely granulate; median thoracic groove lacking. Eyes: six as usual; seen from above, posterior row gently recurved. Ratio of eyes ALE : PME : PLE = 8.5 : 8 : 7.5. ALE separated from one another by slightly more than their radius; barely separated from PLE; separated from PME by a little more than one-half their radius. PME contiguous for about one-fourth of their circumference; separated from PLE by a line. Height of clypeus equal to slightly less than the diameter of ALE; clypeus only moderately lobed in the middle of the ventral border. Chelicerae, maxillae and lip: all apparently typical of males of the genus from the regions under study. Sternum: also essentially typical of the genus in this general region; sternal grooves less intricate than in several other species; sternal suture procurved; fourth coxae separated by about four-thirds of their width. Legs: 42=13 in order of length; tibial index of first leg 11, of fourth leg 10; as far as observed, claws and trichobothria essentially as described for *D. seclusa* Chickering (1951). Leg spines also essentially as described for *D. seclusa*. Palp: all segments except tarsus simple and without special modifications; tarsus with distinctive embolus and associated structures (Figs. 40-41). Abdomen: in general typical of the genus; dorsal and ventral scuta cover nearly the entire surface; spinnerets retracted and nearly invisible; genital aperture typical of the genus. Color in alcohol:

carapace, sternum and abdominal scuta all a rich reddish brown; body of palpal tarsus light yellowish.

Records. One poorly preserved male paratype accompanies the holotype. No date of collection is given. The female is unknown.

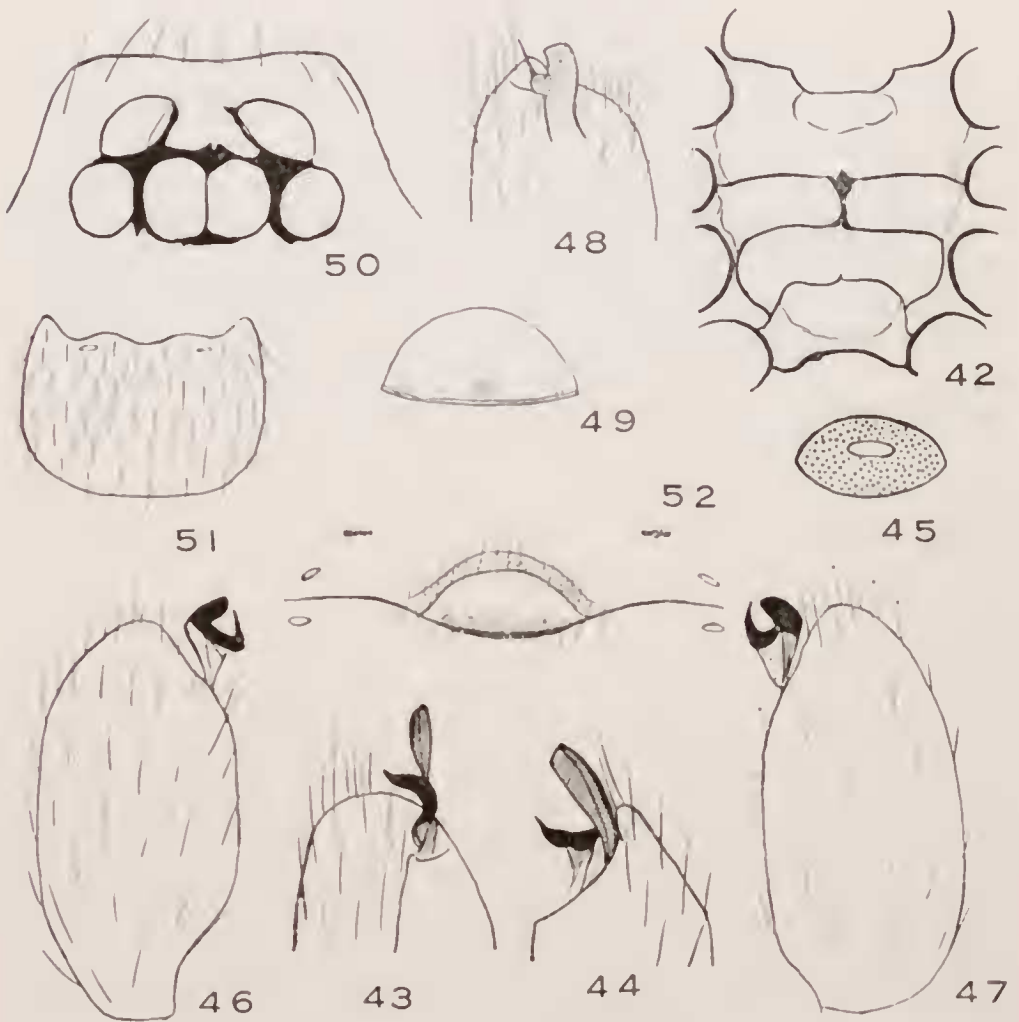
DYSDERINA OBTINA sp. nov.

Figures 42-45

Holotype. The male holotype is from El Volcan, Panama, August, 1950. The name of the species is an arbitrary combination of letters.

Description. Total length 2.54 mm, including extended spinnerets. Carapace 1.1 mm long; 0.88 mm wide opposite second coxae where it is widest; 0.52 mm tall; otherwise essentially typical of males of the genus. Eyes: posterior row occupies about two-thirds of width of carapace at that level; only slightly recurved as seen from above. Ratio of eyes ALE : PME : PLE = 9 : 8.5 : 8. ALE separated from one another by five-ninths of their greatest diameter; separated from PLE by about two-ninths of their diameter and from PME by one-third of their diameter. PME contiguous for about one-sixth of their circumference; separated from PLE by about one-eighth of the diameter of the latter. Posterior row of eyes wider than anterior row in ratio of about 5 : 4. Height of clypeus equal to about eleven-ninths of the diameter of ALE. Chelicerae, maxillae and lip essentially as described for *D. abdita* sp. nov. Sternum: only slightly longer than wide between second coxae; grooved in a distinct manner closely similar to the pattern shown by *D. abdita* sp. nov. and *D. recondita* Chickering (Fig. 42). Fourth coxae separated by nearly five-thirds of their width. Legs: 4123 in order of length; tibial index of first leg 10, of fourth leg 9; trichobothria observed on first femora and tibiae but number and placement not accurately determined. Leg spines: first femur with ventral spines 0-0-2-2-0 unevenly placed; first tibia with five pairs of ventral spines and a pair of distal bristles; first metatarsus with three pairs of ventral spines; second femur with two small ventral spines on promargin; second tibia with four pairs of ventral spines; second metatarsus as in first. Third and fourth legs devoid of true spines. Palp: general features as usual in males of the genus; specific tarsal features shown in Figures 43-44. Abdomen 1.32 mm long exclusive of extended spinnerets; 0.92 mm wide slightly behind the middle; pedicel, scutta, etc., essentially as described for *D. abdita* sp. nov.; genital aperture as shown in Figure 45. Color in alcohol: also essentially as described for *D. abdita* sp. nov. with minor variations.

Records. No paratypes have appeared in my collection and the female is unknown. For some time the holotype was regarded as a deviate of *D. recondita* Chickering but careful attention to the male palp has convinced me that it must be considered to represent a new species as presented here.



Figs. 42-45. *Dysderina obtina* sp. nov. Fig. 42. Sternum from below. Figs. 43-44. Distal end of left male palpal tarsus; nearly prolateral and retrolateral views, respectively. Fig. 45. Genital aperture from below. Figs. 46-49. *Dysderina plena* O. P.-Cambridge. Figs. 46-47. Left male palpal tarsus; nearly prolateral and retrolateral views, respectively. Fig. 48. Distal end of male palpal tarsus; nearly ventral view. Fig. 49. Epigynal area from below. Figs. 50-52. *Dysderina potena* sp. nov. Fig. 50. Eyes from above. Fig. 51. Ventral scutum from below. Fig. 52. Epigynal area from below.

DYSDERINA PLENA O. P.—Cambridge

Figures 46-49

Dysderina plena O. P.—Cambridge, 1894: 143; 1896: 192, pl. 17, fig. 7; pl. 24, fig. 4. Male and female syntypes from Teapa, Mexico, are in the British Museum (Natural History). F. P.—Cambridge, 1899: 44; Banks, 1909: 196; Petrunkevitch, 1911: 125; Roewer, 1933: 185; 1942: 283; Chickering, 1951: 211; Bonnet, 1956: 1638.

As pointed out in 1951, the specimens reported from Panama by Banks (1929) and referred to this species really belong to other genera and species. The specimens reported by Williams (1941) and identified by Dr. W. J. Gertsch as *Dysderina plena* O. P.—Cambridge appear to be *Dysderina silvatica* Chickering (1951).

The female from Teapa, Mexico, on loan from the British Museum (Natural History), has an epigynal area (Fig. 49) very similar to that of *D. silvatica* Chickering. The intricate grooves on the sternum are somewhat different from those on *D. silvatica* Chickering but the two seem to be closely related.

Male. From the British Museum (Natural History). Total length about 2.1 mm. Carapace 0.98 mm long. 0.78 mm wide opposite second coxae where it is widest; about 0.52 mm tall opposite interval between second and third coxae where it is tallest; descent nearly precipitous from highest point to posterior border; surface finely granulate; without a median thoracic groove or pit. Eyes: posterior row occupies a little more than three-fourths of width of cephalic region at this level; gently recurved as seen from above. Ratio of eyes ALE : PME : PLE = 10 : 9.5 : 10. All eyes are somewhat irregular in outline; PME and PLE are more oval than ALE. ALE separated from one another by nearly one-third of their diameter. PME contiguous for about one-fourth of their circumference; PLE nearly contiguous to PME posteriorly but separated anteriorly; PLE and ALE nearly contiguous; posterior row longer than anterior row in ratio of about 5 : 4; viewed from in front, posterior row procurved. Height of clypeus a little more than two-thirds of the diameter of ALE; border of clypeus strongly chitinated. Sternum finely granulate and intricately grooved about as usual in the genus. Genital aperture a narrow slit surrounded by a broad margin. Important features of the palp shown in Figures 46-48. Other features essentially typical of males of the genus.

DYSDERINA POTENA sp. nov.

Figures 50-52

Holotype. The female holotype is from El Volcan, Panama, August, 1950. The name of the species is an arbitrary combination of letters.

Description. Total length, including spinnerets, 2.8 mm. Carapace 1.08 mm long; 0.97 mm wide opposite second coxae where it is widest; 0.48 mm tall; gradually arched from PLE to posterior border; finely but irregularly granulate; without any visible thoracic groove or pit. Eyes: seen from above, posterior row straight if measured by posterior borders; posterior row occupies about two-thirds of width of carapace at that level; seen from in front, posterior row gently procurved. Ratio of eyes ALE : PME : PLE = 9.5 : 9 : 8. ALE separated from one another by a little more than their radius; barely separated from PLE (Fig. 50). Height of clypeus equal to a little more than the diameter of ALE. Chelicerae, maxillae and lip; essentially typical of females of the genus as observed in this study. Sternum only slightly longer than wide; with the usual intricate grooves; quite convex; fourth coxae separated by about 1.5 times their width. Legs: 4123 in order of length; tibial index of first and fourth legs 9; spines on legs essentially as described for *D. silvatica* Chickering (1951). Abdomen: essentially typical of females of the genus with minor variations; ventral scutum as shown in Figure 51. Epigynal area: appears to have certain obscure but distinctive features (Fig. 52). Color in alcohol: carapace irregularly darkened along posterior declivity and lateral sides; generally a rich reddish brown.

This species appears to be closely related to *D. plena* O. P.-Cambridge but differs from that species most conspicuously with respect to its epigynal area which is in the form of a modified oval opening (Fig. 52) with a distinct anterior border and a series of faintly indicated granules along the posterior border. The height of the clypeus is somewhat greater than usual in the genus.

Records. Two paratype females taken August, 1950, in vicinity of El Volcan, Panama. One female from Boquete, Panama, August, 1954 is somewhat doubtfully assigned to this species.

DYSDERINA PRINCEPS Simon

Figures 53-54

Dysderina princeps Simon, 1891, 557. The female holotype from St. Vincent, B. W. I., is in the British Museum (Natural History). Simon, 1893: 290, 304; Petrunkevitch, 1911: 125; Roewer, 1942: 283; Bonnet, 1956: 1638.

So far as I have been able to determine, the species has never been correctly reported since its first recognition. In 1893, however, Simon published his figure 260 which is a drawing of a male palp and it is labelled *D. princeps*. The figure closely resembles the original drawing (fig. 1) accompanying the brief description of *D. principalis* Simon.

The following facts are derived from the study of a female from St. Vincent, B. W. I. on loan from the British Museum (Natural History): Total length 2.66 mm (the author of the species gave the length as 4 mm). Carapace 1.17 mm long; 0.97 mm wide opposite second coxae where it is widest; otherwise essentially typical of females of the genus as seen during this study. Eyes in general as usual in the genus (Fig. 53); ratio of eyes ALE : PME : PLE = 9 : 8.5 : 9.5. Clypeus somewhat higher than that in *D. spinigera* Simon but otherwise closely similar. Sternum intricately but not deeply grooved. Legs 1 and 2 with the usual long ventral spines essentially typical of the genus. Abdomen with the typical scuta and related parts. Epigynal area more distinctive than usual (Fig. 54).

DYSDERINA PRINCIPALIS (Keyserling)

Figures 55-56

Oonops principalis Keyserling, 1882: 296, pl. 11, fig. 16. The male holotype from Colombia is in the British Museum (Natural History).

Dysderina principalis,—Simon, 1891, 557, pl. 42, fig. 1. Simon, 1893: 304; Petrunkevitch, 1911: 126; 1928: 87; Roewer, 1942: 283; Bonnet, 1956: 1638. (Not *D. principalis* Simon from St. Vincent, B. W. I.)

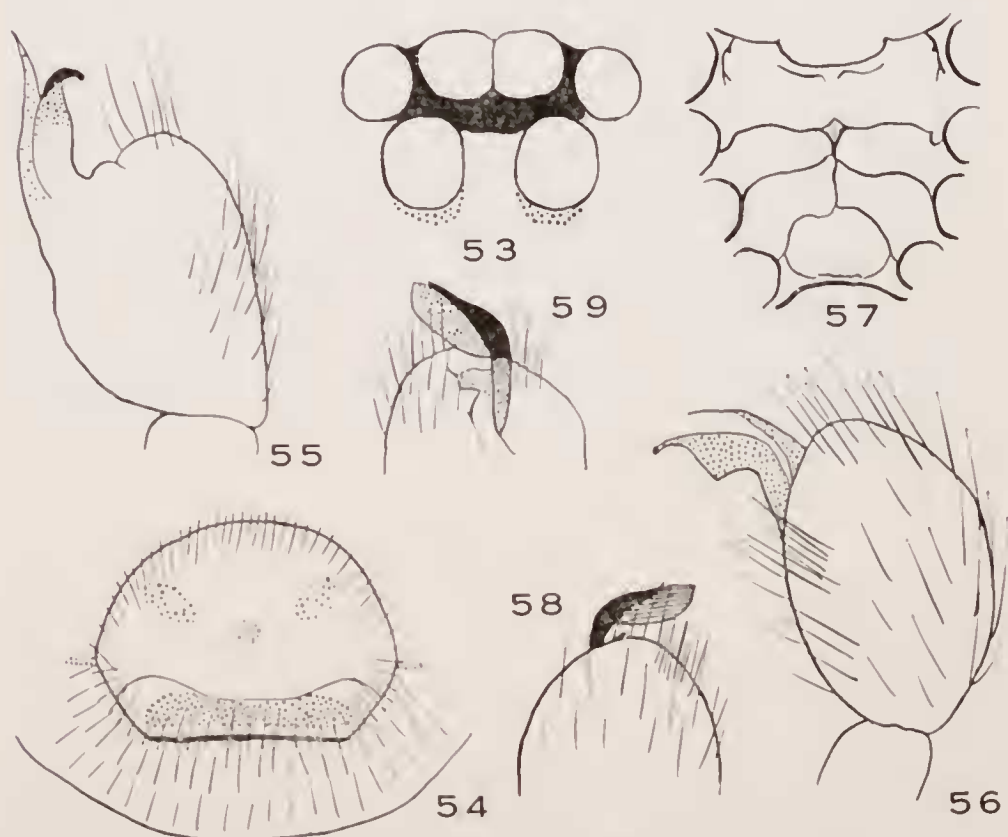
Simon was correct in transferring *Oonops principalis* Keyserling to his new genus *Dysderina* but he was in error when he identified a species of this new genus from St. Vincent, B. W. I., as being *D. principalis* described from Colombia. Apparently Keyserling had only the male upon which to base his species. This specimen has been on loan from the British Museum (Natural History). It is dismembered, but the right palp is in good condition and establishes Simon's error very clearly. In order to aid in clarifying this confusion I am offering two figures of the palpal tarsus (Figs. 55-56). Keyserling's small figure 16 closely resembles those I am providing.

DYSDERINA RECONDITA Chickering

Figures 57-59

Dysderina recondita Chickering, 1951: 217, fig. 4. The male holotype and two paratypes from Boquete, Panama, July, 1939, are in the Museum of Comparative Zoology.

During my brief visit to Boquete, Panama, in August, 1954, I collected eleven additional males. The female is unknown but it seems probable that it is among the different females now recognized from the mountainous regions of Panama. Figures 58-59 are added to the original drawing of the male palp; Figure 57 shows the essential features of the sternal grooves.



Figs. 53-54. *Dysderina princeps* Simon. Fig. 53. Eyes from in front. Fig. 54. Epigynal area from below. Figs. 55-56. *Dysderina principalis* (Keyserling). Two views of right male palpal tarsus. Figs. 57-59. *Dysderina recondita* Chickering. Fig. 57. Sternum from below. Figs. 58-59. Two views of distal end of left male palpal tarsus.

DYSDERINA RIGIDA sp. nov.

Figures 60-61

Holotype. The female holotype is from El Volcan, Panama, August, 1950. The name of the species is a Latin adjective referring to its strongly chitinated scuta, pedicel and other outer parts.

Description. Total length 2.49 mm. Carapace 1.05 mm long; 0.88 mm wide opposite second coxae where it is widest; 0.44 mm tall; other features essentially as described for *D. silvatica* Chickering (1951). Eyes: posterior row gently recurved, seen from

above; occupies about five-sevenths of width of carapace at that level. Ratio of eyes ALE : PME : PLE = 9 : 9 : 8. ALE separated from one another by slightly more than their radius; only slightly separated from PLE and from PME by about one-fourth of their diameter. PME contiguous along about one-fourth of their circumference and longer than wide in ratio of about 9 : 7.5; separated from PLE by one-sixth of their long diameter. Posterior row wider than anterior row in ratio of about 13 : 11. Height of clypeus slightly greater than the diameter of ALE. Chelicerae: vertical, essentially parallel; outer margin with a shallow groove at end of upper third and a slight swelling near middle; a single tooth along margin of fang groove appears to be definitely promarginal (observed on paratype); otherwise essentially as reported for *D. silvatica* (1951). Maxillae, lip and sternum also essentially as reported for *D. silvatica* (1951) except for the system of grooves on sternum (Fig. 60). Legs: 4123 in order of length; tibial index of first and fourth legs 9; trichobothria observed on palpal tibia and tarsus but number and placement not accurately determined. Leg spines: first femur with five ventral spines not evenly paired; first tibia with five pairs of ventral spines; first metatarsus with three pairs of ventral spines. Second leg with ventral spines nearly as on first leg; with only minor differences. Abdomen: spinnerets with a lightly chitinized ventral semicircular sclerite partially surrounding these organs; other features essentially typical of females of the genus. Epigynal area: simple as usual but apparently with obscure distinctive features (Fig. 61). Color in alcohol: essentially typical of the genus with minor variations.

This species is also regarded as being rather closely related to *D. plena* O. P.—Cambridge. It differs from that species most conspicuously with respect to its epigynal area which is in the shape of a modified oval region with a narrow, transverse area along its posterior border (Fig. 61). The pattern of grooves on its sternum also appears to be somewhat distinctive (Fig. 60).

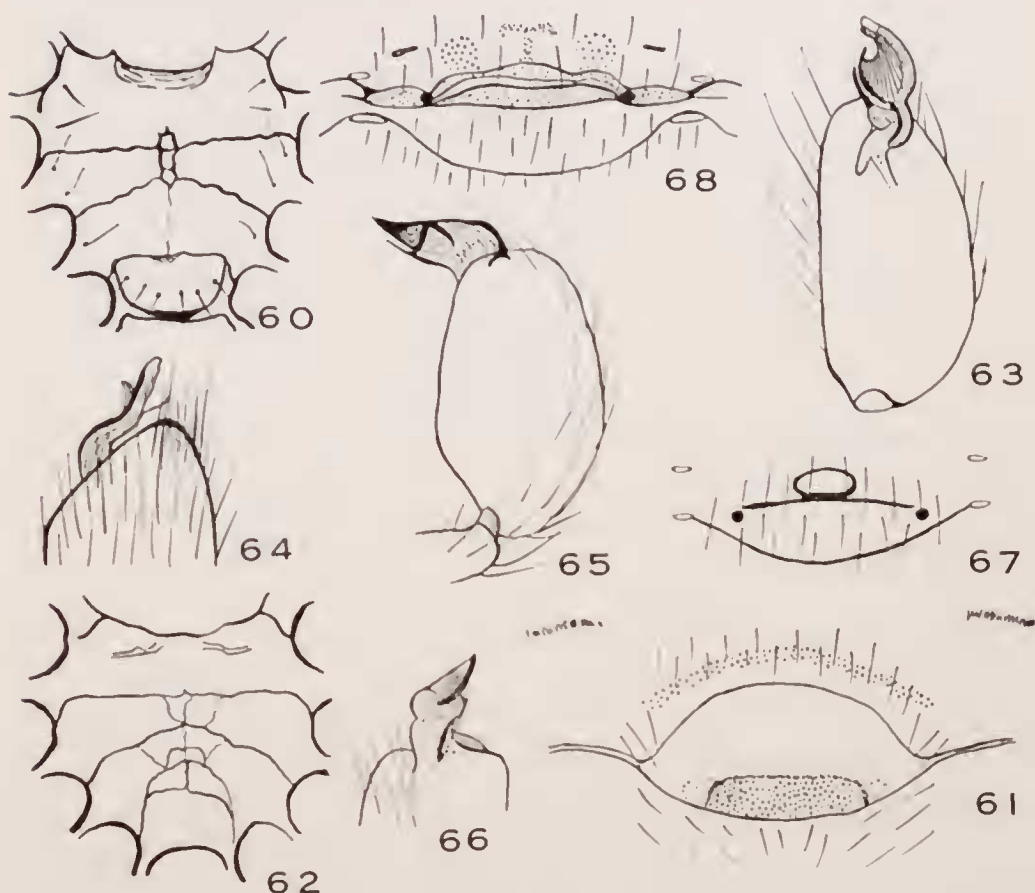
Records. Several female paratypes taken with the holotype, El Volcan, Panama, August, 1950.

DYSDERINA SECLUSA Chickering

Figures 62-64

Dysderina seclusa Chickering, 1951: 213, fig. 5. The male holotype and five male paratypes from Barro Colorado Island, Panama Canal Zone, are in the Museum of Comparative Zoology. All of these were taken in a Berlese funnel by Dr. Zetek, July, 1943-March, 1944, and June-October, 1946.

Since the original description was written, I have added four males to the collection as follows: June-October, 1946 (Zetek); June-August, 1949 (Zetek); August, 1954. I have been unable to match these males with females in any satisfactory manner. With the hope of further clarifying the status of the species three additional figures are offered.



Figs. 60-61. *Dysderina rigida* sp. nov. Fig. 60. Sternum from below. Fig. 61. Epigynal area from below. Figs. 62-64. *Dysderina seclusa* Chickering. Fig. 62. Sternum from below. Fig. 63. Left male palpal tarsus; ventral view. Fig. 64. Distal end of left male palpal tarsus; nearly dorsal view. Figs. 65-68. *Dysderina sinla* sp. nov. Fig. 65. Left male palpal tarsus; retrolateral view. Fig. 66. Distal end of left male palpal tarsus; nearly ventral view. Fig. 67. Genital area of male holotype. Fig. 68. Epigynal area of female paratype.

DYSDERINA SILVATICA Chickering

Dysderina silvatica Chickering, 1951: 217, fig. 6. The female holotype and numerous paratypes from several localities in the Panama Canal Zone and El Valle, Panama, are in the Museum of Comparative Zoology.

Since my report in 1951 I have added numerous females of this species to the collection from the following localities: Barro Colorado Island, Canal Zone Forest Preserve and Summit Gardens all in Panama Canal Zone. Although the evidence is not conclusive, I think it probable that these females belong with *D. dura* Chickering.

DYSDERINA SIMLA sp. nov.

Figures 65-68

Holotype. The male holotype is from Simla, Arima Valley, Trinidad, W. I., April 5, 1964. The name of the species is a noun used in apposition after the type locality.

Description. Total length 1.69 mm. Carapace 0.88 mm long; 0.75 mm wide opposite second coxae where it is widest; 0.47 mm tall; median thoracic groove lacking; smooth along broad, median area from PLE to beginning of posterior declivity; irregularly granulate along lateral sides and much of posterior declivity; fits closely to anterior end of abdomen which is unusual in this genus. Eyes: six as usual in a compact group which occupies nearly three-fourths of width of carapace at level of PE; viewed from above, posterior row slightly recurved. Ratio of eyes ALE : PME : PLE = 8 : 9 : 9. ALE separated from one another by slightly more than their radius; other relationships of eyes typical of the genus in the region under study. Height of clypeus equal to about three-fourths of diameter of ALE. Chelicerae, maxillae and lip all appear to be typical of the genus. Sternum: granulate; intricately but not deeply grooved and lobed; the usual anterior, transverse groove is complete, conspicuous and only slightly behind procurved sternal suture; only slightly longer than wide just behind second coxae; fourth coxae separated by nearly twice their width. Legs: 4123 in order of length; tibial index of first leg 10, of fourth leg 11. Spines on legs about as usual in males of the genus. Palp: all segments simple and without special modifications except the tarsus which has distinctive features (Figs. 65-66). Abdomen: typical of the genus in general; with dorsal and ventral scuta less strongly chitinized than usual (all paratypes appear to be the same in this respect); genital region quite clear and rather distinctive (Fig. 67). Color in alcohol: carapace essentially as described for *D. craneae* sp. nov.; legs and mouth parts a variable yellowish; sternum a deeper yellowish; abdomen with dorsal and ventral scuta a light yellowish in contrast to the usual much darker coloration; epigastric scutum somewhat darker; the free areas not covered by scuta are whitish.

Female paratype. Total length 1.98 mm. Carapace 0.9 mm long; 0.84 mm wide opposite interval between second and third coxae where it is widest; 0.36 mm tall; surface granulate essentially as in male. Cephalothorax closely contiguous to abdomen as in male. Eyes essentially as in male. Chelicerae, maxillae and lip: all essentially typical of females of the genus. Sternum: essentially as in male but with granulation more extensive; fourth coxae separated by nearly twice their width. Legs: $41 = 23$ in order of length; tibial index of first and fourth legs 11; spines essentially typical of the genus. Abdomen: general appearance as usual in the genus; dorsal scutum somewhat less extensive than usual; epigastric scutum about as usual; ventral scutum much smaller than usual and reaches slightly less than half way from genital groove to spinnerets; a narrow, ventral, semicircular sclerite partly surrounds the spinnerets. Epigynal area: quite distinctive but difficult to represent accurately in a drawing (Fig. 68). Color in alcohol: all parts except the abdomen as in male; because of the smaller scuta much more of the abdomen appears nearly white than in the male; posterior to the ventral scutum are several vague darker spots which in some paratypes are quite distinct brownish, irregular spots.

Records. The described female paratype was taken with the holotype. Three male and seven female paratypes are in the collection from Simla, Arima Valley, and along the side of the road from Simla to Blanchesseuse, Trinidad, W. I., March 31-April 25, 1964.

DYSDERINA SOLTINA sp. nov.

Figures 69-75

Dysderina principalis.—Simon, 1891: 557, pl. 42, fig. 1. Male and female syntypes from St. Vincent B. W. I. are in the British Museum (Natural History). (Not *D. principalis* (Keyserling) from Colombia.)

In his study of the genus *Dysderina* from St. Vincent, B. W. I., Simon selected what he considered to be a male and a female of *D. principalis* (Keyserling), gave a brief description and furnished a figure of the male palp. As a result of a study of these specimens together with an example of Keyserling's species from Colombia on loan from the British Museum (Natural History), I am obliged to disagree completely on the identification of these specimens. They seem to me to represent a new species which is described below.

Holotype. The male holotype is from St. Vincent, B. W. I., and will be returned to the British Museum (Natural History). The name of the species is an arbitrary combination of letters.

Description. Total length 1.91 mm (recorded as 3.5 mm in Simon's description). Carapace 0.92 mm long; 0.73 mm wide opposite second coxae; 0.35 mm tall; only gradually narrowed behind eyes; surface irregularly granulate as usual; otherwise typical of the genus. Eyes: six as usual; seen from above, posterior row gently recurved; ratio of eyes ALE : PME : PLE = 8 : 7 : 7 (outlines poorly defined). ALE separated from one another by their radius. PME contiguous for about one-fourth of their circumference; barely separated from PLE. Height of clypeus equal to about five-eighths of the diameter of ALE. Chelicerae, maxillae and lip typical of the genus as far as observed. Sternum: typical of the genus in general; major and minor grooves and depressions moderately complex; extended as usual between fourth coxae and articulated with pedicel; fourth coxae separated by five-thirds of their width. Legs: 4123 in order of length; tibial index of first leg 10, of fourth leg 9; ventral spines on first leg as shown in Figures 71-73; fewer ventral spines on second leg. Palp: all segments except tarsus simple and unmodified as usual; tarsus considerably inflated and with distinctive terminal structures difficult to observe clearly (Figs. 69-70). Abdomen: all parts in general typical of males of the genus; scuta cover nearly the entire surface. Color in alcohol: also typical of the genus with few minor variations.

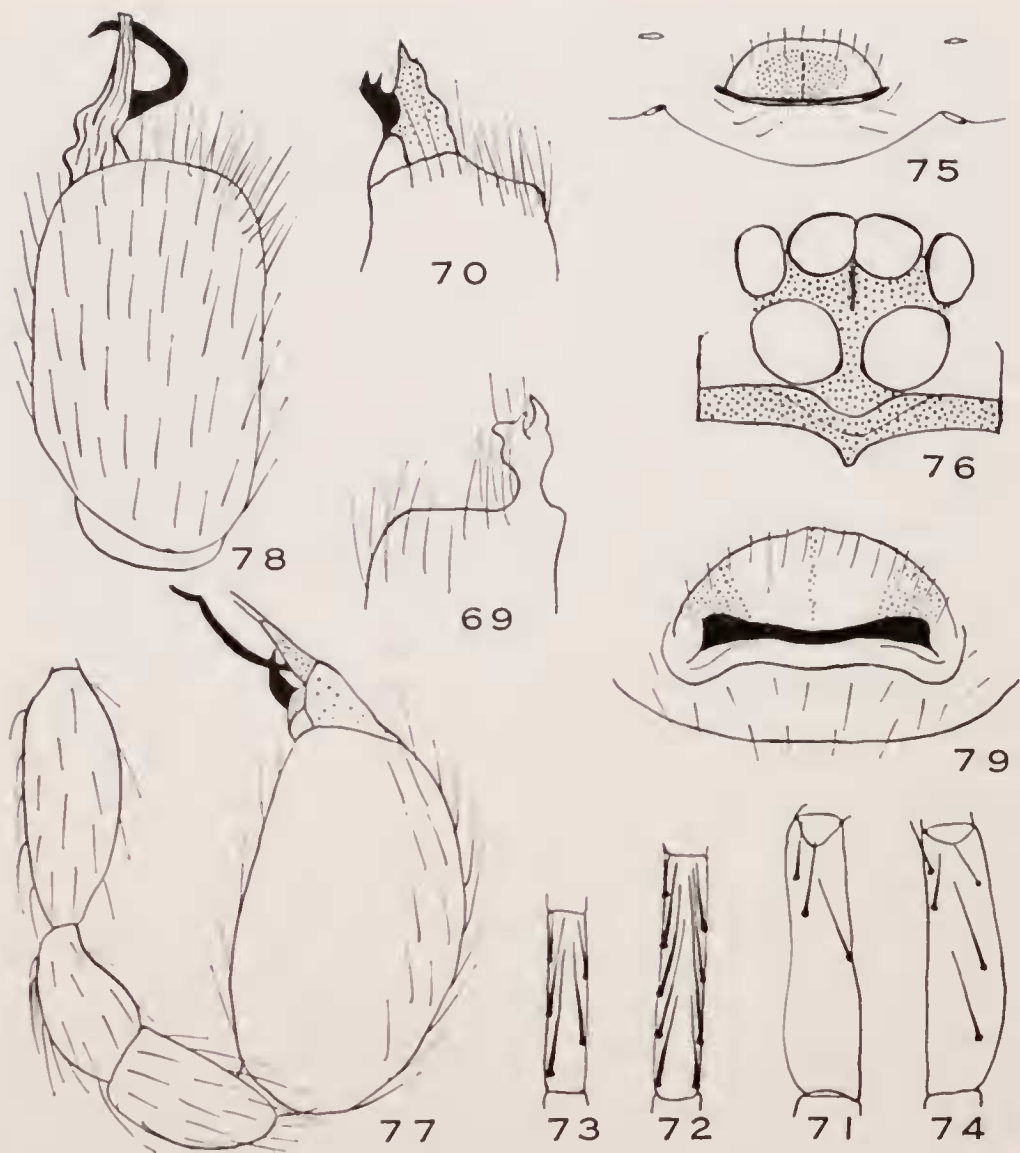
Female paratype. This is apparently the specimen which Simon regarded as the female of *D. principalis* (Keyserling). For the present I am regarding it as the female of the new species *D. soltina*. Total length 1.98 mm (Simon gave length as 4 mm). Carapace 0.9 mm long; 0.73 mm wide; 0.4 mm tall; general features typical of females of the genus. Leg spines: the first femur has five ventral spines, two on promargin and three on retromargin (Fig. 74); other segments with spines much as in male. Abdomen with scuta and other parts essentially typical of the genus. Epigynal area: obscurely distinctive as usual (Fig. 75).

Records. As far as I have been able to determine the two specimens described here are the only members of the species known at present.

DYSDERINA SPINIGERA Simon

Figures 76-79

Dysderina spinigera Simon, 1891, pl. 42, figs. 2-3. Male and female syntypes from St. Vincent, B. W. I., are in the British Museum (Natural History). Simon, 1893: 304; Petrunkevitch, 1911: 126; Roewer, 1942: 283; Bonnet, 1956: 1639.



Figs. 69-75. *Dysderina soltina* sp. nov. Fig. 69. Left male palpal tarsus; nearly dorsal view. Fig. 70. Distal end of left male palpal tarsus; retrolateral view (more enlarged). Figs. 71-73. Ventral spines on first left femur, tibia and metatarsus, respectively. Fig. 74. Ventral spines on first left femur of female paratype. Fig. 75. Epigynal area of female paratype from below. Figs. 76-79. *Dysderina spinigera* Simon. Fig. 76. Eyes from in front. Fig. 77. Left male palp; retrolateral view. Fig. 78. Left male palpal tarsus; dorsal view. Fig. 79. Epigynal area from below.

Simon reported both sexes of this species from St. Vincent and Venezuela where he regarded it as widespread. I have not seen the specimens from Venezuela but, on the basis of my study of this

genus, I consider it unlikely that they are the same as these from St. Vincent. I was disappointed in my failure to collect any specimens of the genus *Dysderina* during my brief visit to this island in October, 1966.

The following facts relating to this species have been recorded as a result of my study of a male and two females on loan from the British Museum (Natural History).

Male. Total length 1.61 mm (Simon gave length of male as 4 mm). Carapace 0.86 mm long; 0.66 mm wide opposite second coxae where it is widest; otherwise essentially typical of the genus as observed in this study. Eyes: essentially as shown in Figure 76; ratio of eyes ALE : PME : PLE = 10 : 9 : 9 (outlines irregular); ALE closer together than usual in the genus; clypeus with strongly chitinized ventral border and conspicuously lobed ventrally in front (Fig. 76). Sternum moderately grooved in fairly typical manner. Legs essentially typical in respect to spination and relative lengths; trichobothria observed but exact distribution undetermined. Palp: quite distinctive; appearance very different from Simon's figure 3, 1891; essentials shown in Figures 77-78. Abdomen: with typical dorsal and ventral scuta; genital aperture a simple, minute slit.

Female. Total length, exclusive of projecting spinnerets and slightly exposed chelicerae 2.09 mm; including posterior spinnerets and slightly exposed chelicerae, length is 2.2 mm (Simon gave length as 4.5 mm). General form and external features essentially like those of male. Abdomen: with dorsal and ventral scuta somewhat less extensive than in male; epigynal area very distinctive; unlike that seen in other species (Fig. 79).

DYSDERINA WATINA sp. nov.

Figures 80-84

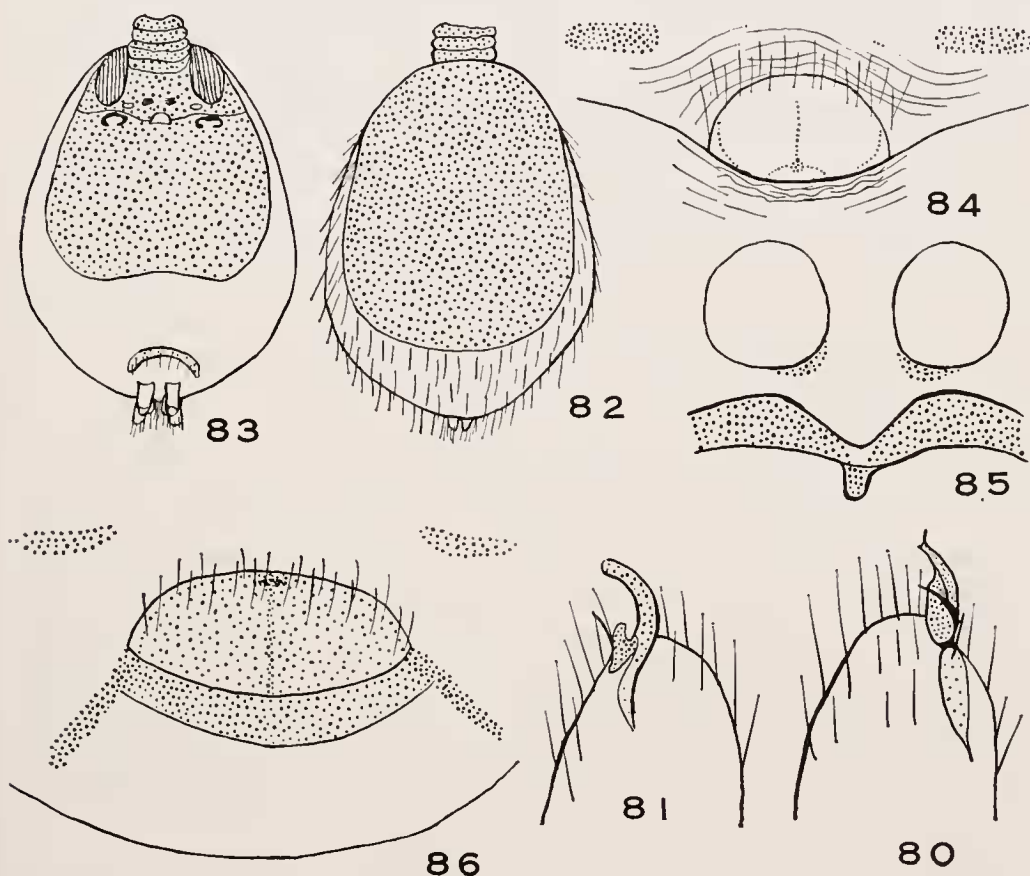
Holotype. The male holotype is from Turrialba, Costa Rica, July 25-Aug. 15, 1965. The name of the species is an arbitrary combination of letters.

Description. Total length 2.24 mm. Carapace 1.03 mm long; 0.86 mm wide opposite second coxae where it is widest; 0.45 mm tall opposite second coxae; moderately grooved immediately behind PE; regularly arched from groove to beginning of moderately steep posterior declivity; surface irregularly granulate; otherwise essentially typical of the genus. Eyes: six in two rows as usual; posterior row gently recurved, seen from above; posterior row occupies about seven-ninths of width of carapace at that level.

Ratio of eyes ALE : PME : PLE = 10 : 8 : 9. ALE separated from one another by about their radius, from PLE by nearly one-fifth of their diameter and from PME by about three-tenths of their diameter. PME barely separated from one another and from PLE by about three-sixteenths of their diameter. Height of clypeus nearly equal to long diameter of ALE. Chelicerae, maxillae and lip typical of the genus as far as observed. Sternum: clearly but less intricately grooved than in several other species; posterior coxae separated from one another by about 1.5 times their width; otherwise essentially typical of the genus. Legs: 4123 in order of length; tibial index of first leg 8, of fourth leg 7; spines conspicuously long and slender but otherwise essentially typical of males of the genus. Palp: all segments except tarsus simple and unmodified; tarsus with distinctive distal features as shown in Figures 80-81. Abdomen: essentially typical of males of the genus. Color in alcohol: lighter than usual in the genus; carapace, pedicel and sternum a medium yellowish brown; abdomen and legs yellowish with variations.

Female paratype. Total length 2.75 mm exclusive of slightly projecting spinnerets and chelicerae; including these parts total length is 2.9 mm. Carapace 1.1 mm long; 0.92 mm wide opposite interval between second and third coxae; about 0.44 mm tall; rather deeply grooved immediately behind PE and then gently arched to posterior declivity; otherwise typical of the genus. Eyes: PME contiguous for nearly one-fourth of their circumference; ratio of eyes ALE : PME : PLE = 10 : 10 : 9.5; other features essentially as in male. Height of clypeus immediately below ALE equal to slightly less than the diameter of these eyes; clypeus conspicuously lobed in middle between bases of chelicerae. Chelicerae, maxillae and lip essentially typical of females of the genus. Sternum: with the usual pattern of major grooves and other inconspicuous irregularities; fourth coxae separated by five-thirds of their width. Legs: 4123 in order of length; tibial index of first leg 9, of fourth leg 10; spines of first and second legs conspicuously long but essentially typical of females of the genus with minor variations. Abdomen: scuta, pedicel, spiracles, etc. nearly typical of females of the genus (Figs. 82-83); a very clear narrow sclerite partially surrounds spinnerets on ventral side; what appears to be a chitinous dot marks the position of the reduced colulus. Epigynal area: obscurely distinctive (Fig. 84). Color in alcohol: much more colorful than in male; carapace, sternum and abdominal scuta all a rich reddish brown with lateral sides of carapace irregularly darkened by granulations; areas of abdomen not covered by scuta clear white; legs brownish yellow with variations.

Records. The described female paratype together with three other females were all taken from weed and hay debris in the same general locality from which the male holotype was taken, Turrialba, Costa Rica, July 25-August 15, 1965. It seems reasonable to assume that the male holotype and females belong together but there can be no absolute certainty.



Figs. 80-84. *Dysderina watina* sp. nov. Figs. 80-81. Distal end of left male palpal tarsus; prolateral and retrolateral views, respectively. Figs. 82-83. Dorsal and ventral views of abdomen of female paratype. Fig. 84. Epigynal area of female paratype, from below. Figs. 85-86. *Dysderina zinona* sp. nov. Fig. 85. ALE and clypeus from in front. Fig. 86. Epigynal area from below.

DYSDERINA ZINONA sp. nov.

Figures 85-86

Holotype. The female holotype is from St. Vincent, B. W. I., Mt. Soufriere, June 1, 1965 (R. T. Bell). The name of the species is an arbitrary combination of letters. The specimen serving here as the holotype of a new species is somewhat damaged but its most important features are still in good condition.

Description. Total length about 2.28 mm. Carapace 1.08 mm long; 0.86 mm wide opposite second coxae where it is widest; 0.54 mm tall; irregularly granulate as usual; otherwise essentially typical of females of the genus. Eyes: in general, as usual in the genus; viewed from above, posterior row gently recurved and occupies about seven-tenths of width of carapace at that level. Ratio of eyes ALE : PME : PLE = 9 : 8.5 : 8. ALE separated from one another by nearly their radius; from PLE by nearly one-half their radius and by slightly more than this from PME, which are contiguous for about one-fourth of their circumference and barely separated from PLE. Clypeus conspicuously lobed in front (Fig. 85); height immediately below ALE equal to nearly two-thirds of the diameter of these eyes. Chelicerae, maxillae and lip typical of females of the genus as far as observed. Sternum: fairly typical also; major grooves and secondary depressions make a rather intricate pattern; fourth coxae separated by a little more than their width. Legs: 4123 in order of length; tibial index of first leg 10, of fourth leg 9; first leg with five ventral spines on femur as in Figure 74; first tibia with five ventral spines on promargin and four on retromargin; first metatarsus with three ventral spines on promargin and two on retromargin. Second leg with somewhat fewer ventral spines than occur on first leg. Third and fourth legs without true spines. Abdomen: considerably damaged but apparently quite typical of females of the genus. Epigynal area: undamaged; rather distinctive (Fig. 86). Color in alcohol: carapace a rich reddish brown; sternum somewhat lighter; legs yellowish brown with variations; abdominal scuta probably much like carapace but somewhat lighter like the sternum.

D. zinona sp. nov. is regarded as closely related to *D. princeps* Simon. The epigynal area (Fig. 86) is quite different from that region in *D. princeps* Simon (Fig. 54) and much simpler. The clypeus is also conspicuously lobed in front (Fig. 85).

Records. No paratypes have appeared in the collection.

BIBLIOGRAPHY

BANKS, NATHAN

1909. Arachnida from Costa Rica. Proc. Acad. Natur. Sci. Philadelphia, April, 1909: 194-234, 2 pls.

1929. Spiders from Panama. Bull. Mus. Comp. Zool., 69: 53-96, 4 pls.

BONNET, PIERRE

1956. Bibliographia Araneorum. Toulouse. Vol. 2 (2).

BRYANT, ELIZABETH

1942. Notes on the spiders of the Virgin Islands. *Bull. Mus. Comp. Zool.*, **89**: 317-363, 3 pls.
1948. The spiders of Hispaniola. *Bull. Mus. Comp. Zool.*, **100**: 331-447, 12 pls.

CAMBRIDGE, O. P.—AND F. P.—CAMBRIDGE

- 1889-1905. *Arachnida-Araneida*. Vols. I-II. *In*: *Biologia Centrali-Americana*. Dulau & Co., London.

CHICKERING, ARTHUR M.

1951. The Oonopidae of Panama. *Bull. Mus. Comp. Zool.*, **106**: 207-245, 31 figs.

COMSTOCK, J. H.

1940. *The Spider Book*. Revised and edited by W. J. Gertsch. Doubleday, Doran & Company, Inc., New York.

GERTSCH, W. J.

1941. Report on some arachnids from Barro Colorado Island, Canal Zone. *Amer. Mus. Novit.*, No. 1146: 1-14, 4 pls.

KASTON, B. J.

1948. Spiders of Connecticut. State of Connecticut. State Geological and Natural History Survey, *Bull.* **70**: 1-874.

KEYSERLING, GRAF EUGEN VON

1881. Neue Spinnen aus Amerika. III. *Verhandl. Zool. Bot. Ges. Wien*, **31**, 269-314, pl. 11.

PETRUNKEVITCH, ALEXANDER

1911. A synonymic index-catalogue of spiders of North, Central, South America, etc. *Bull. Amer. Mus. Natur. Hist.*, **29**: 1-809.
1928. *Systema Araneorum*. *Trans. Connecticut Acad. Arts and Sci.*, **29**: 1-270.
1939. Catalogue of American Spiders. Pt. 1. *Trans. Connecticut Acad. Arts and Sci.*, **33**: 135-338.

ROEWER, C. FR.

1933. Araneen aus mexikanischen Ameisenwohnpflanzen. *Zool. Anzeiger*, **102**: 183-188.
1942. *Katalog der Araneae*. **1**: 1-1040. Bremen.

SIMON, E.

1891. On the spiders of the island of St. Vincent. Pt. 1. *Proc. Zool. Soc. of London*, Nov. 17, **1891**: 549-575.
- 1892-1903. *Histoire naturelle des Araignées*. Deuxième Edition. 2 Vols. *Librarie Encyclopedique de Roret*, Paris.

WILLIAMS, ELIOT C., JR.

1941. An ecological study of the floor fauna of the Panama rain forest. *Bull. Chicago Acad. Sci.*, **6**: 63-124.

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